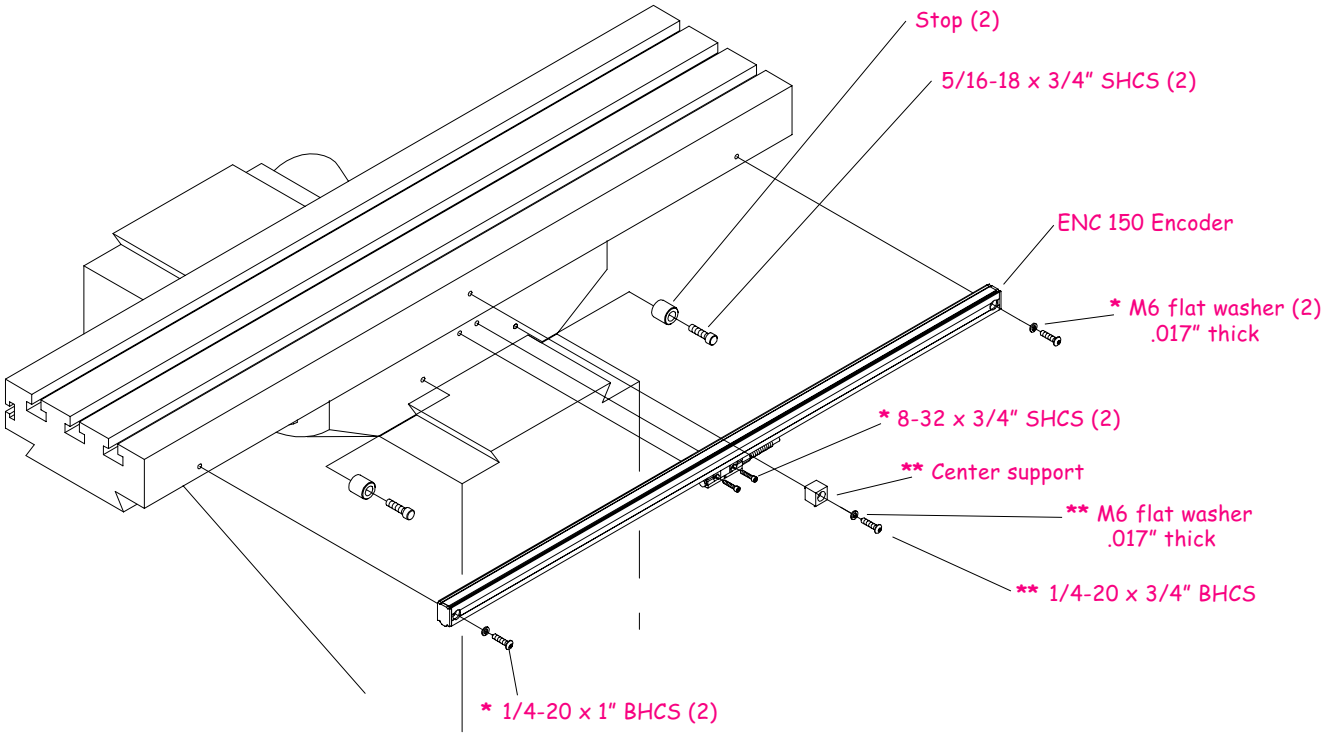
Longitudinal Installation ...

* Supplied with encoder hardware
** Supplied with center support hardware



These are general application instructions for mounting the longitudinal "X" axis.

The 32" , 35" & 36" encoders are typical to this application. Other length encoders can be applied.

Before proceeding:

- ➤ Read the instructions completely before beginning.
- ➤ Mount longitudinal axis prior to cross feed installation.
- ➤ Axis travel must be ≤ encoder measuring length.
- ➤ Customize installation steps as necessary.
- ➤ Clean the mounting surfaces.
- ➤ Adjust drill depths as required.
- ➤ Save the alignment brackets.

First Steps ...

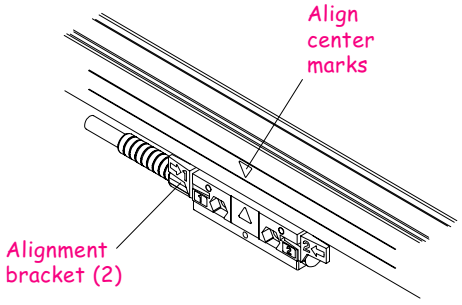
Machine

- ✔ Move the table to its center of travel.
- ✔ Mark the axis so that it can be re-centered easily.
- ✔ Move the saddle completely forward on the knee.

Encoder

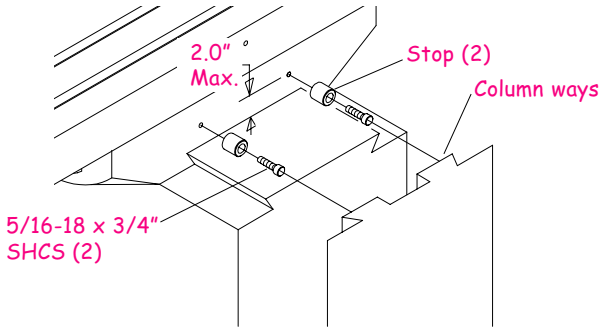
- ✔ Unpack both encoders in a safe, convenient location.
- ✔ Do not remove the reading head alignment brackets until instructed.

Center reading head ...



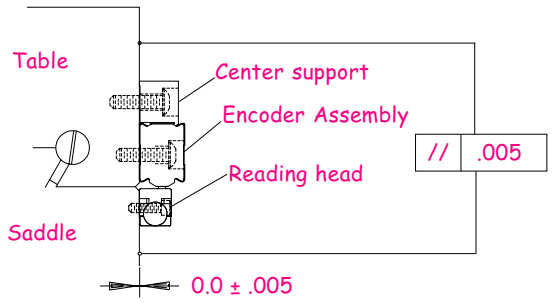
- Slide the reading head and brackets along the scale case until center marks on scale and reading head are aligned.
- Reading head must stay centered on scale case during encoder installation.

Saddle stops ...



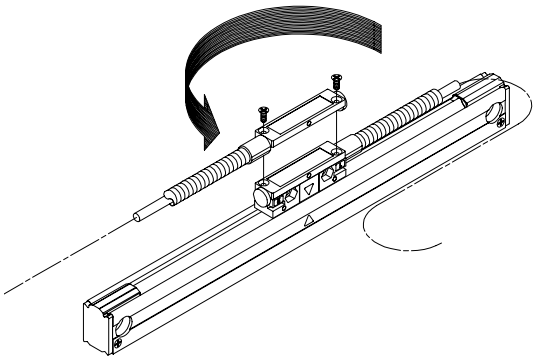
- Locate stops a max of 2" to the saddle base, in line with each column way.
- Mark the locations; drill and tap for a 5/16 - 18 x 1/2" deep.
- Attach stops, and secure in place.

Encoder orientation ...



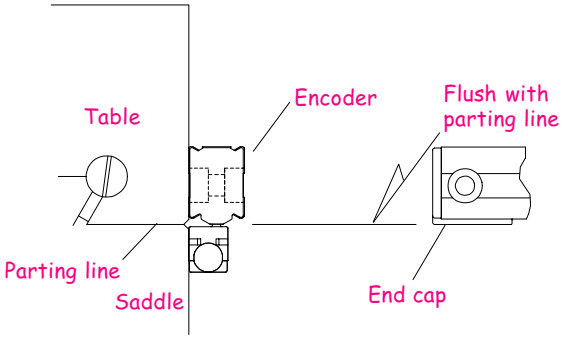
- These mounting instructions will position the encoder assembly to the back side of the table and saddle as shown.
- For surfaces that are not parallel within .005", additional mounting conditions and options are illustrated in the Encoder Manual "Typical Mountings".

Cable exit ...

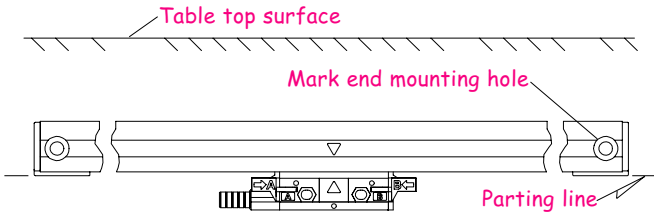


- Determine cable exit direction before installing encoder.
- To change cable exit direction; remove base and rotate 180°.

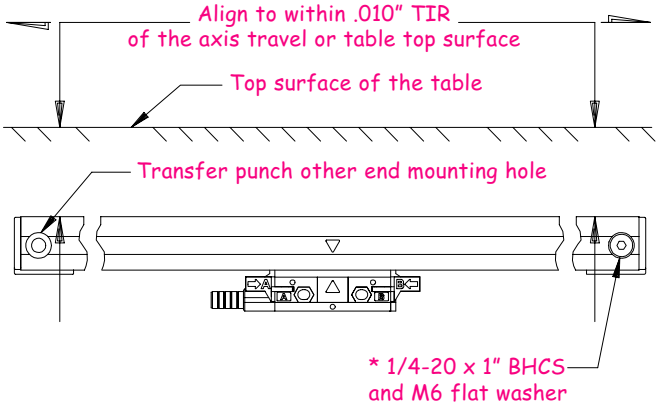
Encoder Installation ...



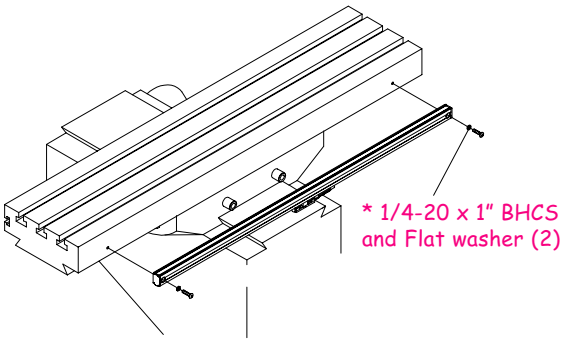
- Set the encoder against the table with the underside of the end caps flush with the table / saddle parting line.
- Centered the encoder lengthwise with the center of the table.



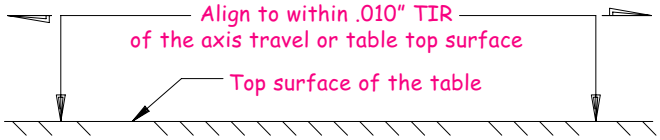
- Mark one encoder end mounting hole location to the back of the table.
- Remove the assembly.
- Drill and tap hole location for a 1/4-20 x 1/2" deep.

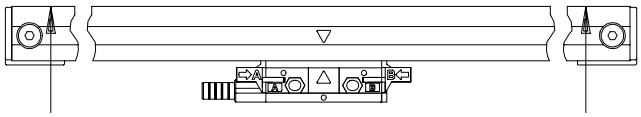

Align to within .010" TIR of the axis travel or table top surface
Top surface of the table
Transfer punch other end mounting hole
* 1/4-20 x 1" BHCS and M6 flat washer

- Fasten the encoder assembly at one end.
- Align the top of the encoder to the axis travel or top surface of the table.
- Transfer punch the second end mounting hole.
- Remove the encoder.
- Drill and tap hole location for a 1/4-20 x 1/2" deep.



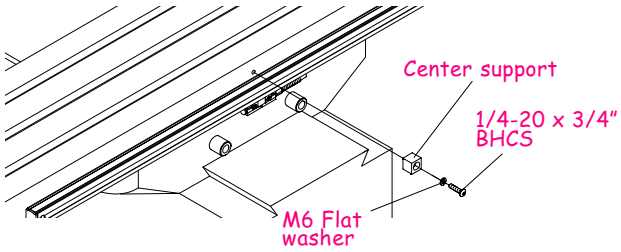
- Attach the encoder to the table.



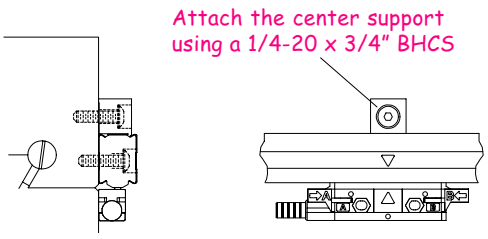


- Align the top of the encoder to within .010" TIR.
- Secure encoder in place maintaining alignment.

Center support installation ...

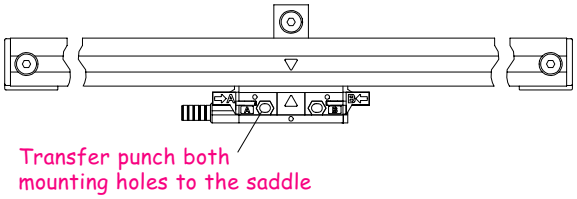


- Insert the center support in the top of the scale case.
- Ensure that the center support is centered and interlocks with the scale case.

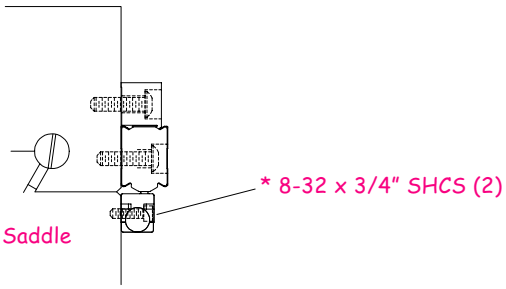


- Transfer punch the mounting hole location, remove the center support. Cover scale case and drill and tap mounting hole.
- Attach center support to scale case and table, insure alignment is maintained & secure in place.

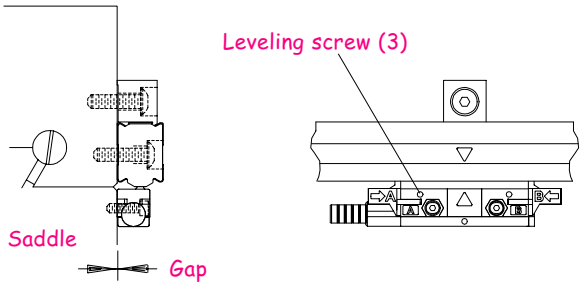
Reading head installation ...



- Return the axis to the center of travel.
- Transfer punch reading head mounting holes.
- Slide the reading head to one side.
- Drill and tap hole locations for 8/32 x 1/2" deep.



- Attach the reading head to the saddle, **but do not tighten.**

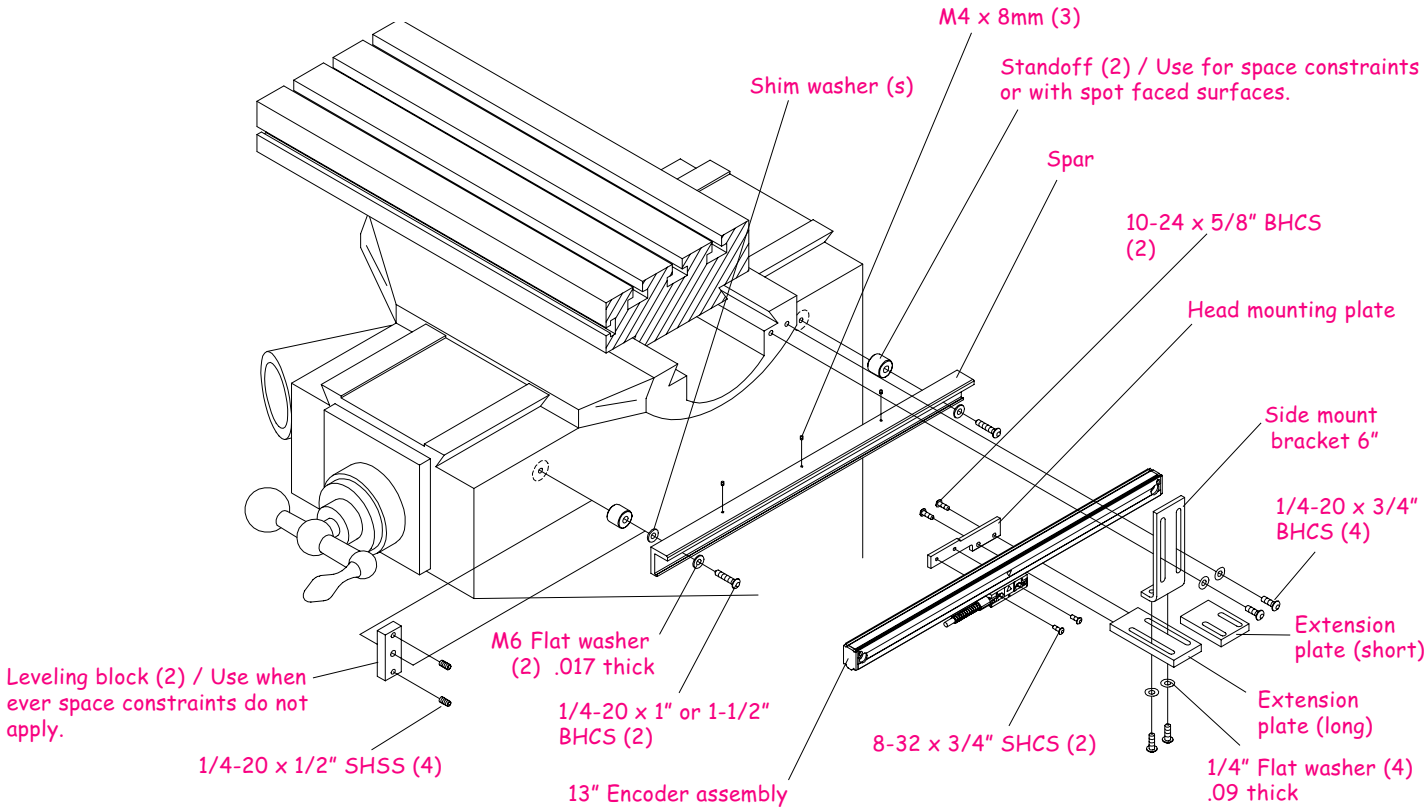


- If a gap of .005" or greater exists between the reading head and the saddle, the leveling screws must be used to maintain head alignment.
- Set each leveling set screw by placing a .001" - .003" feeler gage between the set screw and the bracket.
- Adjust each set screw until a slight drag is felt on the feeler gage.
- **Evenly tighten the two 8-32 SHCS.**

Go to Encoder BUTTON UP on Page 7 before completing the cross feed

Cross Feed Installation ...

* Supplied with encoder hardware


M4 x 8mm (3)
Shim washer (s)
Standoff (2) / Use for space constraints or with spot faced surfaces.
Spar
10-24 x 5/8" BHCS (2)
Head mounting plate
Side mount bracket 6"
1/4-20 x 3/4" BHCS (4)
Extension plate (short)
Extension plate (long)
1/4" Flat washer (4) .09 thick
8-32 x 3/4" SHCS (2)
13" Encoder assembly
M6 Flat washer (2) .017 thick
1/4-20 x 1" or 1-1/2" BHCS (2)
Leveling block (2) / Use when ever space constraints do not apply.
1/4-20 x 1/2" SHSS (4)

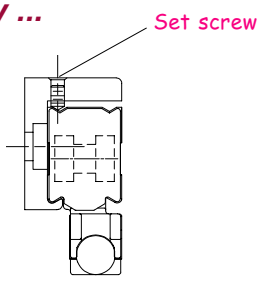
These instructions are for mounting the cross feed "Y" axis encoder using the 13" encoder. A 12" encoder can be used with this kit, but the spar will overhang the encoder ends approximately 1/2" each end.

First Steps ...

Machine

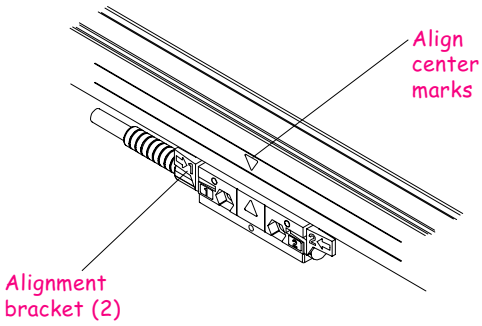
- ✔ Move the saddle to its center of travel.
- ✔ Mark the axis so that it can be re-centered easily.
- ✔ Insert the M4 x 8mm set screws into the top of the spar.

Spar / Encoder assembly ...



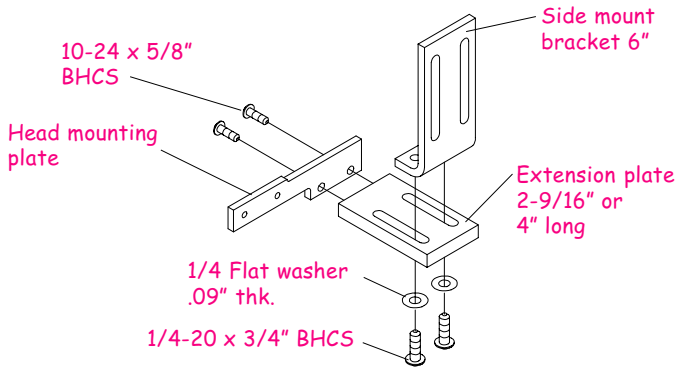
- Insert the encoder into the spar as shown.
- Center encoder in spar.
- Tighten center set screw only.

Center reading head ...



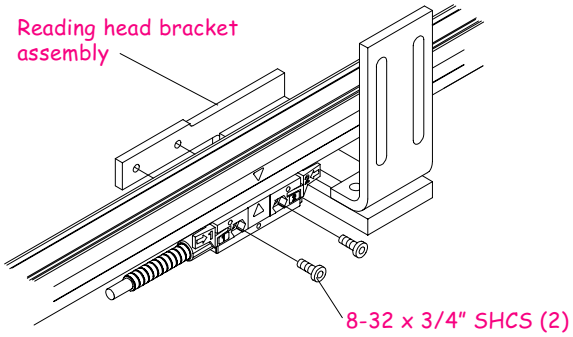
- Slide the reading head and brackets along the scale case until center marks on scale and reading head are aligned.
- Reading head must stay centered on scale case during encoder installation.

Bracket assembly ...



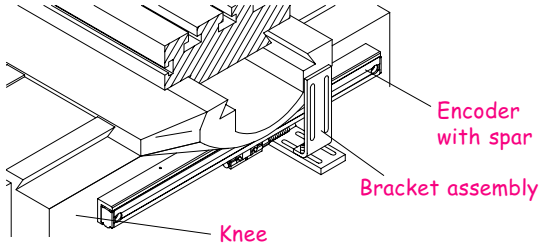
- Assembly the brackets, fully extending the extension plate.

Bracket attachment ...

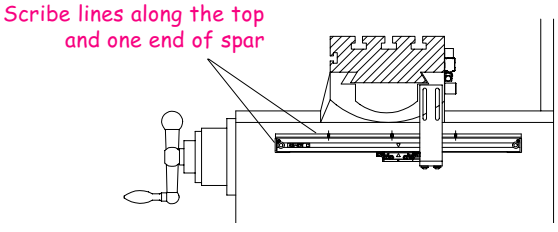


- Temporarily attach the assembly to the encoder.

Spar location ...

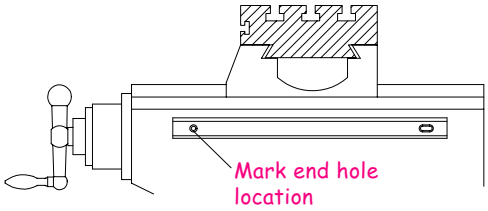


- Position the spar to the side of the knee.
- Position the bracket assembly to the saddle.

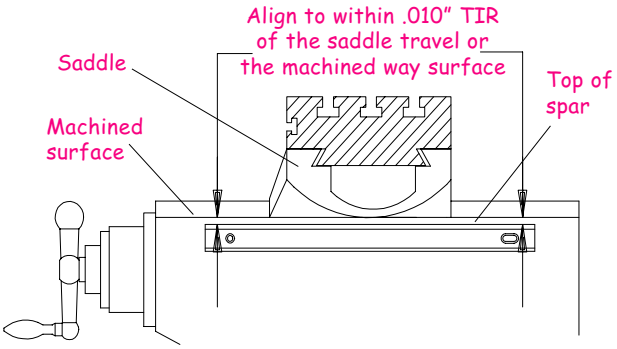


- Scribe spar location reference lines on the knee.
- Remove the assembly.
- Remove the bracket assembly, and remove the spar from the encoder.

Spar installation ...

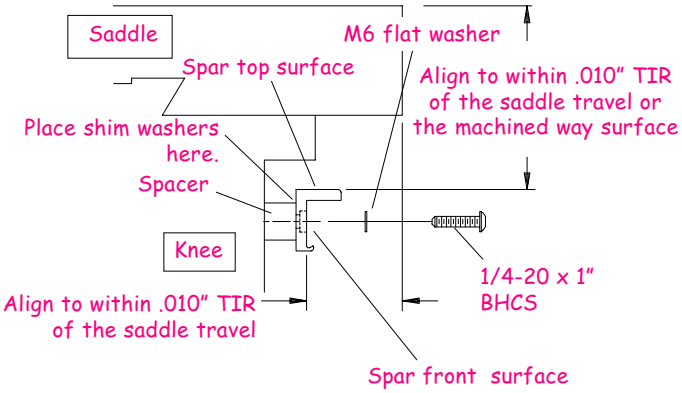


- Position the spar to the scribed lines.
- Transfer punch one end hole location to the knee.
- Drill and tap location for a 1/4-20 x 1/2" deep.



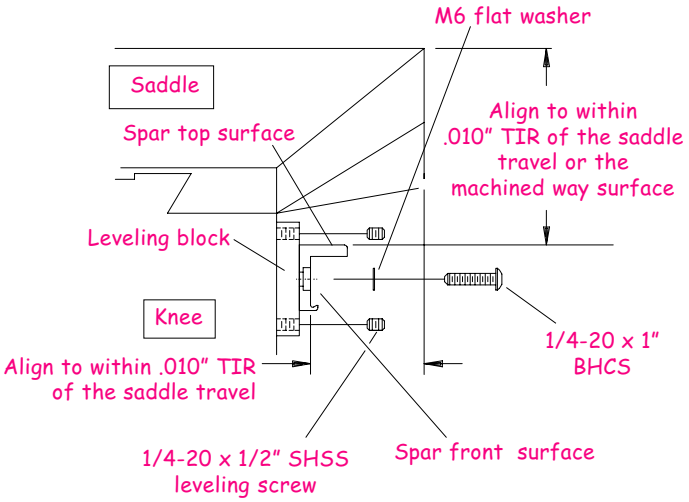
- Fasten the spar to the knee at one end.
- Align the top of the spar.
- Transfer punch the second mounting hole.
- Remove spar, drill and tap for a 1/4-20 x 1/2" deep.

Using spar spacers ...


Saddle
M6 flat washer
Spar top surface
Align to within .010" TIR of the saddle travel or the machined way surface
Place shim washers here.
Spacer
Knee
1/4-20 x 1" BHCS
Align to within .010" TIR of the saddle travel
Spar front surface

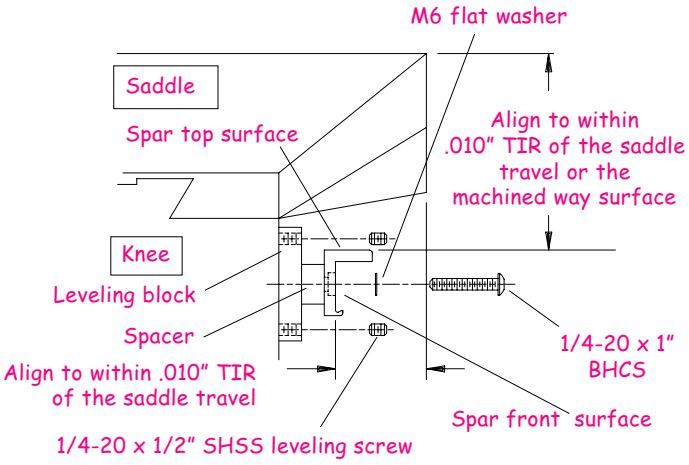
- Attach the spar with spacers to the knee.
- Align the front surface of the spar using shims as necessary.
- Align the top surface of the spar.
- Secure the spar in place maintaining alignments.

Using spar leveling blocks ...


M6 flat washer
Saddle
Spar top surface
Align to within .010" TIR of the saddle travel or the machined way surface
Leveling block
Knee
1/4-20 x 1" BHCS
Align to within .010" TIR of the saddle travel
1/4-20 x 1/2" SHSS leveling screw
Spar front surface

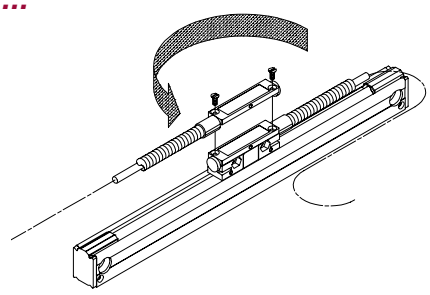
- Attach the spar with leveling blocks to the knee. Insert leveling set screws.
- Align the front surface of the spar using the leveling screws as necessary.
- Align the top surface of the spar.
- Secure the spar in place maintaining alignments.

Using spar leveling blocks and spacers ...


M6 flat washer
Saddle
Spar top surface
Align to within .010" TIR of the saddle travel or the machined way surface
Knee
Leveling block
Spacer
1/4-20 x 1" BHCS
Align to within .010" TIR of the saddle travel
Spar front surface
1/4-20 x 1/2" SHSS leveling screw

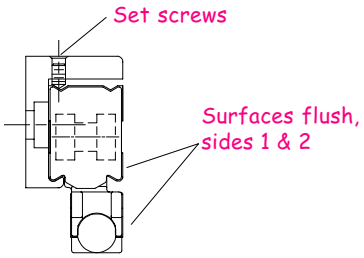
- Attach the spar with leveling blocks and spacers (for additional stand off height) to the knee. Insert leveling set screws.
- Align the front surface of the spar using the leveling screws as necessary.
- Align the top surface of the spar.
- Secure the spar in place maintaining alignments.

Cable exit ...



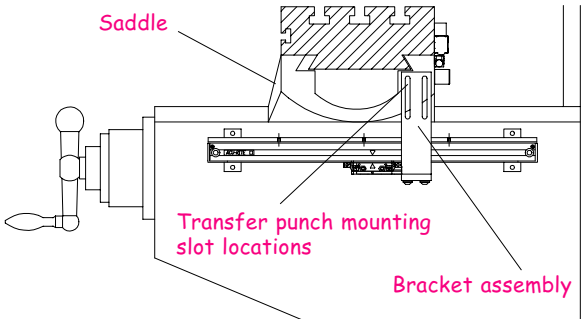
- Determine cable exit direction before installing encoder.
- To change cable exit direction; remove base and rotate 180°.

Encoder installation ...

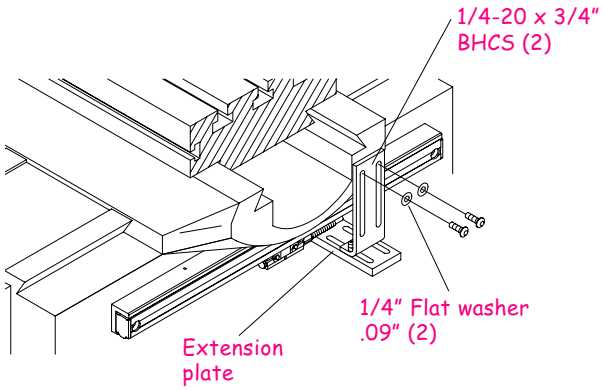


- Insert the encoder into the spar as shown.
- Lock in place by tightening the three spar set screws.

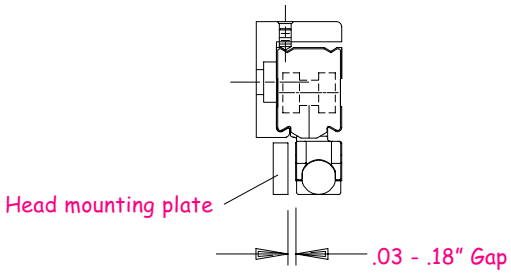
Reading head bracket installation ...



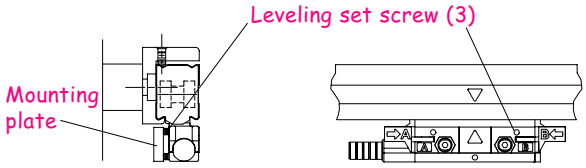
- With the saddle at the center of travel, attach the bracket assembly to the reading head.
- Position the assembly to the saddle, and transfer punch the two mounting slot locations.
- Remove the assembly and drill and tap the locations for 1/4-20 x 1/2" deep.



- Use either the 4" or the 2-9/16" extension plate. Trim excess from 4" extension plate if needed.
- Attach the bracket assembly to the saddle.

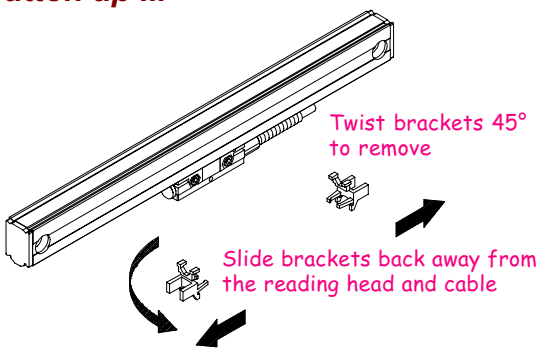


- Adjust the mounting plate clearance so that a gap of .03" - .18" exist.
- Align the mounting plate with the reading head mounting holes.
- Secure the bracket assembly in place.



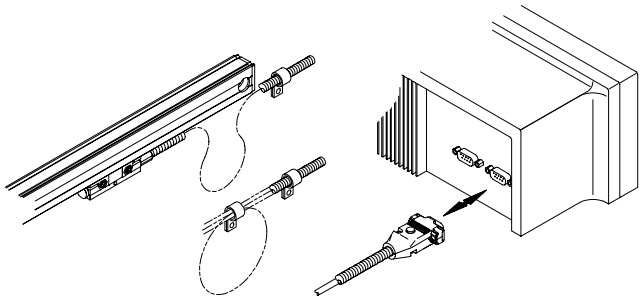
- Set each leveling screw by placing a .001 - .003" feeler gage between the screw and reading head mounting plate.
- Adjust each screw until a slight drag is felt on the feeler gage.
- **Insert and evenly tighten the two 8-32 SHCS.**

Encoder button up ...



- Use allen wrench from set screw adjustment to slide alignment brackets away from the reading head.
- Remove alignment brackets and save for possible future use.
- Move the axis through its full travel. Confirm the that the assembly does not interfere with the machine movement.

Completing the installation ...



- Complete the cross feed and longitudinal encoder installations.
- Route the cables providing sufficient slack loops for machine movement to the readout.
- Secure cables by fastening with clips or ties.
- Attach the linear encoder connectors to the readout.